

Egypt Pharmacist Licensure Examination (EPL) Blueprint

DOMAIN 1 – Clinical Pharmacy Competencies (25% of Examination equivalent to 18 questions):

Subdomain 1 – Obtain, Interpret, or Assess Data, Medical, or Patient Information (Approximately 5% of Examination equivalent to 4 questions)

- 1.1.1 – From medical records: chief complaint, medication history, medical history, family history, social history, lifestyle habits, socioeconomic background, instruments, screening tools, laboratory, or diagnostic findings
- 1.1.2 – From patients and practitioners: treatment adherence, or medication-taking behaviour; chief complaint, medication history, medical history, family history, social history, lifestyle habits, socioeconomic background
- 1.1.3 – Signs or symptoms of medical conditions, healthy physiology, aetiology of diseases, and pathophysiology
- 1.1.4 – Risk factors or maintenance of health and wellness
- 1.1.5 – Evidence-based literature or studies using primary, secondary, and tertiary references

Subdomain 2 – Develop or Manage Treatment (Approximately 20% of Examination equivalent to 14 questions)

- 1.2.1 – Therapeutic goals or outcomes and clinical endpoints
- 1.2.2 – Medication reconciliation and resources for collection of best possible medication history (BPMH); indication or therapeutic uses.
- 1.2.3 – Medication selection based on the patients' criteria and understanding of therapeutic classes of adults' general medicine-related diseases*
- 1.2.4 – Medication dosing or dosing adjustment (based on renal and liver function); duration of therapy of therapeutic classes of adults' general medicine-related diseases*
- 1.2.5 – Medication route of administration, dosage forms, or delivery systems of therapeutic classes of adults' general medicine-related diseases*
- 1.2.6 – Medication contraindications, allergies, or precautions of therapeutic classes of adults' general medicine-related diseases*
- 1.2.7 – Adverse drug effects, side effects, toxicology, or overdose of therapeutic classes of adults' general medicine-related diseases*
- 1.2.8 – Drug interactions (Drug-Drug interactions, Drug-Food interactions, Drug-Lab interactions)
- 1.2.9 – Therapeutic monitoring parameters, monitoring techniques and tools, monitoring frequency and interpretation
- 1.2.10 – Communication and patient education and counselling
- 1.2.11 – Guidelines, and literature evaluation/Research methods/Evidence-based decision making (including pharmacoepidemiology)

* e.g. endocrine disorders, gastrointestinal disorders, renal disorders, cardiovascular disorders, respiratory disorders, neurological disorders, infectious diseases (UTI, upper & lower respiratory tract infections), and other chronic conditions for adults.

DOMAIN 2 – Pharmacy Practice Competencies (25% of Examination equivalent to 18 questions):

Subdomain 1 – Identify Drug Product/Medication Characteristics (Approximately 3% of Examination equivalent to 2 questions)

- 2.1.1 – Commercial availability; prescription or non-prescription status; brand, generic, or biosimilar names; physical descriptions; or how supplied

Subdomain 2 – Order, Dispense, or Administer Drugs, or Manage Delivery Systems (Approximately 6% of Examination equivalent to 4 questions)

- 2.2.1 – Prescriptions/Orders requirement and processing
- 2.2.2 – Techniques, procedures, or equipment for handling hazardous or non-hazardous sterile and nonsterile products
- 2.2.3 – Instructions or techniques for medication administration
- 2.2.4 – Medication storage, handling, or disposal
- 2.2.5 – Drug distribution systems (individual prescription order, complete floor stock system, combination of individual prescription order and floor stock, unit dose dispensing; both centralized and decentralized)

Subdomain 3 – Develop or Manage Practice or Medication-Use Systems to Ensure Safety and Quality (Approximately 6% of Examination equivalent to 4 questions)

- 2.3.1 – Interdisciplinary practice, collaborative practice, or expanded practice responsibilities
- 2.3.2 – Continuity of care or transitions of care
- 2.3.3 – Rational use of medications and Stewardship (e.g., antimicrobial stewardship, anticoagulant stewardship...)
- 2.3.4 – Vulnerable populations, special care populations (pregnancy, lactation, paediatrics, geriatrics)
- 2.3.5 – Medication/Patient Safety Practices (Common medication errors and drug related problems)
- 2.3.6 – Pharmacovigilance and adverse drug reaction/events reporting

Subdomain 4 – Role of the Pharmacist in Community Pharmacy (Approximately 10% of Examination equivalent to 8 questions)

- 2.4.1 – Responding to symptoms in the pharmacy (respiratory tract symptoms, gastrointestinal symptoms, skin and conditions, ache, and pain conditions)
- 2.4.2 – Over the counter (OTC) products (safe and proper use of herbal drug or mixture of herbal preparation)
- 2.4.3 – Healthcare promotion (Family planning, smoking, obesity)
- 2.4.4 – Nutraceuticals, food supplements, complementary and alternative medicine. (herbal drugs and dietary supplements used in gastrointestinal, renal, cardiovascular, skeletomuscular disorders)

DOMAIN 3 – Pharmaceutical Competencies (25% of Examination equivalent to 17 questions):

Subdomain 1 – Identify Drug Characteristics (Approximately 15% of Examination equivalent to 10 questions)

- 3.1.1 – Mechanism of actions, pharmacodynamics, pharmacological class with special emphasis on adults' general medicine-related diseases (e.g. endocrine disorders, gastrointestinal disorders, renal disorders, cardiovascular disorders, respiratory disorders, neurological disorders and other chronic conditions)
- 3.1.2 – Drug precautions, contraindications, or allergies
- 3.1.3 – Toxicology, adverse drug effects and drug overdose or poisoning
- 3.1.4 – Drug interactions (Drug-drug interactions, Drug-food interactions, Drug-herb interactions, Food-herb interactions) in a pharmacological point of view
- 3.1.5 – Physicochemical properties of drug/drug products affecting compatibility, stability, delivery, release, absorption, onset, duration, distribution, metabolism, or elimination (e.g. particle size, pka, solubility)
- 3.1.6 – Drug route of administration, dosage forms, or delivery systems (effect of dosage form and route of administration on drug absorption)

Subdomain 2 – Manage Manufacturing Process or Evaluate Delivery Systems (Approximately 10% of Examination equivalent to 7 questions)

- 3.2.1 – Good manufacturing practice (GMP) including all aspects of validation, inspection, and the requirements for manufacturing facilities, technology transfer, documentation and auditing, process deviation, and complaint handling
- 3.2.2 – Operation unit and Equipment in drug product manufacturing (e.g. mixing, drying, size reduction and enlargement, size analysis, filtration, tableting)
- 3.2.3 – Dosage form design, development and manufacturing in the pharmaceutical industry including liquid, semi-solid, solid products. e.g. solutions, colloids, suspensions, and emulsions; ointments, creams, gels, and pastes; powders, granules, tablets, and capsules; sterile products (parenteral and ophthalmic preparations); modified release delivery systems (controlled and targeted dosage forms); cosmetic and cosmeceutical products
- 3.2.4 – Quality control (QC) of different pharmaceutical products (human, herbal, or veterinary, or cosmetics, sterile or nonsterile) in terms of physicochemical, analytical, and microbiological attributes (e.g. sterility and endotoxin testing, total microbial counts, tests for the absence of pathogens)
- 3.2.5 – Quality control of raw materials (physicochemical, analytical, and microbiological testing: total microbial counts, tests for the absence of pathogens)
- 3.2.6 – Packaging: types (e.g. bottle, vial, closure, cap, ampoule, blister) and materials (e.g. glass, plastic, metal, rubber)
- 3.2.7 - Solving formulation problems, including drug-drug and drug-excipient incompatibility, poor drug solubility, permeability, and bioavailability
- 3.2.8 - Applying the knowledge of industrial pharmacy in solving problems emerging during manufacturing of different pharmaceutical products

DOMAIN 4 – Pharmaceutical Calculations (15% of Examination equivalent to 10 questions):

- 4.1 – Calculating patient parameters or laboratory measures (e.g., body mass index, body surface area, creatinine clearance, ideal body weight, lean body weight, anion gap, corrected sodium, adjusted body weight)
- 4.2 – Quantities of medications to be dispensed or administered
- 4.3 – Medication Reconstitution and dilution
- 4.4 – Rates of administration (e.g., infusion rates, maintenance doses, dosing intervals, drop factor)
- 4.5 – Dose calculation and dose conversions
- 4.6 – Drug concentrations, ratio strengths, aliquots, triturations, alligations, osmolarity, osmolality, isotonicity or extent of ionization
- 4.7 – Quantities of drugs or excipients to be compounded
- 4.8 – Pharmacokinetic parameters (Bioavailability; absolute and relative bioavailability, bioequivalence; limits for acceptance for bioequivalent products, half-life, C_{max}, T_{max}, AUC, V_d, switching dosage forms, interchangeable dosage forms, pharmaceutical equivalents, and alternatives, time to sampling steady state, loading dose calculation, duration of action after dose administration, etc....)
- 4.9 – Kinetic stability of dosage forms: Reaction order kinetics (Zero order, first order, second order), Arrhenius equation, shelf-life determination (Q10 method)

DOMAIN 5 – Laws, Legislations, Ethics and Professionalism (10% of Examination equivalent to 7 questions):

Follow Administrative and Regulatory Laws (Law 127/1955 & other national regulations):

- 5.1 – Practise within legal requirements including handling of controlled and narcotics medications
- 5.2 – Regulations for the registration of pharmaceutical, biological, over the counter (OTC) products, or medical devices
- 5.3 – Regulations for the licensing of pharmacies, manufacturers, stores, or distribution companies
- 5.4 – Licensing process of bioequivalence, bioavailability, or stability centres
- 5.5 – Professionalism/Ethics including applications of ethical principles, Confidentiality and privacy, and Professional boundaries and judgement

Appendix for suggested therapeutics topics:

hypertension, chronic heart failure, Ischaemic heart diseases, stroke (haemorrhagic & ischemic), diabetes mellitus, thyroid dysfunction, dyslipidaemia, anticoagulants, liver disease and its complications (ascites, variceal bleeding, hepatic encephalopathy), renal disease and its complications, asthma, COPD, pneumonia, UTI, inflammatory bowel disease, viral hepatitis, peptic ulcer, GERD.